# DERT Annual Scientific Retreat
## 27–28 November 2001, Southern Pines, NC

### Invited Speakers

**Marilie Gammon**, University of North Carolina at Chapel Hill
**Jose Russo**, Fox Chase Cancer Center
**John Sheridan**, Ohio State University
**Carol Shively**, Wake Forest University
**Steven Watkins**, Lipomics Technologies
**John Godelski**, Harvard University
**Kenneth Ramos**, Texas A&M University
**Suzanne Snedeker**, Cornell University
**Charles Perou**, University of North Carolina at North Carolina
**Mark Laudenslager**, University of Colorado
**Bruce Hammock**, University of California at Davis
**C. Arden Pope III**, Brigham Young University
**Mary K. Walker**, University of New Mexico

The third annual DERT Scientific Retreat, titled "Pathophysiology of Environmentally Associated Disease," was held to explore research opportunities, new initiatives, and emerging technologies in environmental health sciences. The retreat revolved around four scientific sessions that resulted in the development of the following recommendations.

### Breast Cancer and the Environment

Presentations included critical windows of susceptibility during breast development and the effects of xenobiotics; genetic, physiologic, and toxicologic factors that vary over a woman's life span; and how these interactions add to the complex biology of breast cancer. Also discussed were how epidemiologic risk factors are particularly important as scientists prepare to incorporate information from the human genome.

*Recommendations:*

- Expand the understanding of windows of susceptibility, particularly in light of growth factors.
- Improve comparability of animal and human models.
- Support molecular epidemiology studies of gene–environment interaction with regard to breast cancer.
- Use genomic methodologies to better classify subcategories of disease.

### Models of Physical/Social Environmental Stress

This session explored innovative behavioral research being conducted in animals on stress, which affects immunologic, cardiovascular, and neurologic systems.

*Recommendations:*

- Establish appropriate animals models in conjunction with animal behaviorists for predicting human health effects of the interaction between social and physical environmental stressors.
- Expand the area of behavioral toxicology and other mechanism-based research.
- Conduct studies for predicting the life-long health implications for the developing fetus of maternal stress.
- Use animal models to determine the effectiveness of intervention strategies such as enriched environments.

### Metabolomics

Metabolomics is the measurement of all metabolites in all people over time. It is a nascent technology that could be used as a screen for health and to promote healthy lifestyles for individuals that can then be extrapolated for populations.

*Recommendations:*

- Continue to explore the potential of metabolomics for environmental health applications.
- Invest in better, cheaper, and faster tools.

### Environmental Connections to Cardiovascular Diseases

A growing body of evidence demonstrates that environmental pollutants such as particulate matter have striking effects on cardiovascular disease incidence and mortality. This session highlighted recent research results supporting this hypothesis and discussed new models for cardiovascular research.

*Recommendations:*

- Develop mechanisms to encourage interactions between epidemiologists and basic scientists.
- Develop funding mechanisms for long-term chronic studies.
- Initiate a program of small grants to move technology from fields related to cardiovascular research to environmental health studies.
- Aggressively recruit cardiovascular disease researchers into the environmental health arena.